RESPONSE TO COMMENTS
NORTH SLOPE BOROUGH
THERMAL OXIDATION SYSTEM
Air Quality Minor Permit No. AQ0831MSS01
July 22, 2005

On April 29, 2005 the Department of Environmental Conservation (the department) issued a public notice soliciting comments regarding a preliminary Air Quality Control Minor permit decision for the North Slope Borough (NSB) Thermal Oxidation System (TOS). The department proposed to authorize Owner Requested Limits for the operation of the Thermal Oxidation System at Barrow in order to avoid the requirement for Title V permitting.

The department accepted comments on the preliminary decision documents through the close of business on May 31, 2005. During the public notice period, the department received comments only from Tom Gibbons of Steigers Corporation on behalf of the North Slope Borough on May 31, 2005. The department's responses to comments are found italicized below.

Comment to draft minor permit No. AQ0831MSS01

1. General Comment:
Recommend updating the regulatory reference to the current Alaska air quality regulations.

Response: *The department has not inserted the regulatory citations in construction permit or minor permits. The department opted not to insert the regulatory citation in order to be consistent with the format for minor permits and construction permits issued to other stationary sources. The basis for the terms and conditions in the minor permit has been discussed in the Technical Analysis Report (TAR).*

2. Cover Page:
Please add the word "Facility" after Thermal Oxidation System in the first paragraph. The second paragraph has a typographical error (delete "an").

Response: *The department will add the word facility as requested.*

3. Section 1. Identification
The Permittee's Responsible Official and Fee Contact: is Kent Grinage, Deputy Director, Public Works.
The Designated Agent is Michael Donovan, Program Manager (michael.donovan@north-slope.org).
The Facility and Building Contact is Ray Atos, Sanitation Manager (ray.atos@north-slope.org).

Response: *The department will make the change to the identification.*

4. Table 1
The footnote to Table 1 states "The Permittee may use natural gas, No. 1, No. 2, or on-specification used oil fuel for the auxiliary burners in the primary and secondary combustion chamber of the incinerator." This is not completely accurate and needs to be revised. The

secondary chamber burners and Primary Chamber No. 2 burners use only natural gas fuel. Only Primary Chamber No. 1 can use natural gas, No. 1 diesel, No. 2 diesel, and on-specification used oil as supplemental fuels. In addition, for Unit ID 6, there is a typographic error. The Unit Name should state "Suppression Pump **E**ngine Diesel Fuel-fired."

Response: *The department acknowledges that used oil can be burnt only in the primary chamber 1. The footnote will be revised as proposed by the commentator. The department will also correct the typographical error in the identification of the suppression pump engine.*

5. Condition 1.1

Assessable emissions are 77 tpy (see emissions worksheet in Attachment 1).

Response: *The department inadvertently included the HCl and VOC emissions that are below 10 tons per year (tpy) each, towards assessable emissions. The commentator is correct in stating that the assessable emissions are 77 tpy. Please see potential emissions in Exhibit A of the TAR.*

6. Condition 2.2

It is unclear what period constitutes the "fiscal year" or whose fiscal year applies for the purpose of estimating anticipated actual emissions. Therefore, please clarify Condition 2.2 as follows:

2.2 if no estimate is received on or before March 31 of each year, emission fees for the Department's next fiscal year (July 1 – June 30) will be based on the potential to emit set forth in condition 1.1.

Response: *The basis for emission fees and the reference to the fiscal year is in 18 AAC 50.410. However, the department will oblige the commentator's request to specify the time period for the department's fiscal year in condition 2.2 for clarity.*

7. Condition 4.1a

The used oil burner in Unit ID 1 is currently decommissioned. NSB may never recommission it. Therefore, please revise Condition 4.1a to require testing with used oil only if it will be burned as a fuel in Unit ID 1 within the next 24 months:

a. At least once in every 24 months after the effective date of this permit, conduct a particulate matter source test on the exhaust stack emissions in accordance with Section 9. Conduct the test with the incinerator operating at peak capacity and, if used oil will be burned in Unit ID 1 within the next 24 months, while burning used oil fuel.

Response: *If the operator is uncertain about burning used oil, the permit should have the flexibility to source test with used oil only if used oil will be burned in the unit. The department will revise the condition to require source testing with used oil only if used oil will be burned within the next 24 months of the test date.*

8. Condition 5

The May 2004 Engineering Study conducted by Alaska Source Testing (AST) (see June 10, 2004, AST report submitted to ADEC under separate cover) evaluated the effects of lowering the secondary chamber combustion temperature on CO emissions from Unit ID 1. The Engineering

Study concluded that maintaining a minimum secondary combustion temperature of 1,500°F and a minimum secondary chamber oxygen content of 1 percent in Unit ID 1 ensured complete combustion and limited hourly average CO concentrations to much less than 100 ppmv. In fact, the Engineering Study found that as long as the secondary chamber oxygen content was above 1 percent, the CO concentration was less than 5 ppmv. In addition, maintaining a secondary chamber combustion temperature of 1,600°F (not 1,650°F) was a requirement of the NSB Barrow TOS Construction Permit No. 9771-AC012. Therefore, please revise Condition 5 as follows:

5. Pre-Heating and Burn-Down. Prior to adding material to Unit ID 1, the Permittee shall pre-heat the secondary combustion chamber temperature to the minimum temperature of 1,650°F and maintain the temperature of the secondary combustion chamber to no less than 1,600°F, except during startup, cool-down, and shutdown.

Response: *The department agrees with the commentator that maintaining the temperature of the secondary chamber at above 1600°F is adequate to ensure CO emissions limit. The requirement of 1600°F should have been carried forward correctly from permit No. 9771-AC012. Please see section 5.5 of the TAR. Maintaining a 1600°F in the secondary chamber is also consistent with the requirements in condition 6. The department will revise condition 5 accordingly.*

9. Condition 5.1

The thermocouple that indicates the temperature of the primary chamber is 10 feet downstream of the primary chamber and 2 feet upstream of the secondary chamber. The thermocouple for the secondary chamber is located in the middle of the combustion zone. These are the temperature sensors that relay data to the Data Acquisition System. Therefore, to better define the location of temperature monitoring, please revise Condition 5.1 as follows:

5.1 The Permittee shall install, operate, maintain, and observe a temperature monitoring device at the exit of the primary combustion chambers and within the secondary combustion chamber.

Response: *The department will make the requested revision to better define the location of the temperature monitoring device.*

10. Condition 5.1a

Condition 5.1a repeats much of Condition 5.1 and is unnecessary. Therefore, please revise Condition 5.1a as follows:

5.1a During operation and burn-down the Permittee shall observe the temperature of the primary and secondary combustion chambers.

Response: *The department agrees that condition 5.1a repeats what is stated in condition 5.1. It makes sense to revise the condition as proposed by the commentator.*

11. Condition 5.1c

In accord with the temperature change to Condition 5 (above), please revise Condition 5.1c as follows:

5.1c Install and monitor an audible alarm that will sound if the temperature drops below 1,600°F, except during startup, cool-down, and shutdown.

Response: *The requested revision is consistent with maintaining the secondary chamber temperature to above 1600°F. Therefore, the department will make the requested revision.*

12. Condition 5.2

Likewise, please revise Condition 5.2 to account for the temperature change as follows:

5.2 Report under condition 40 whenever the 5-minute average combustion zone temperature of Unit ID 1 is below 1,600°F, except during startup, cool-down, and shutdown.

Response: *Since the operator is required to maintain the temperature at 1,600°F rather than 1,650°F, condition 5.2 should correctly require reporting when the temperature falls below 1,600°F and not 1,650°F.*

13. Condition 5.3

There is no reason to report a monthly average temperature. Also, this condition should state that the "combustion zone temperature" refers to the secondary combustion chamber. Therefore, please revise Condition 5.3 as follows:

5.3 Report under the operating report required under condition 41 the lowest monthly 5-minute average secondary combustion chamber temperature of Unit ID 1 during the reporting period.

Response: *The commentator is correct in stating that the monthly averages are not required. It is the 5-minute average that is critical. Reporting the lowest 5-minute average for each month excluding startup and shutdown, will adequately demonstrate compliance with the minimum required temperature. Please note that preliminary condition 5.3 permit is final permit condition 22.3 after reorganization of the permit conditions.*

14. Condition 6

This requirement was developed in response to an explanation provided to ADEC for a particulate matter source test that failed. At that time, the motor actuators for the Primary Exhaust Dampers (PEDs) were not functioning and the dampers were being controlled manually by the operators. It was thought at the time of the exceedance (and what was reported to ADEC) that the operators had inadvertently opened the offgas damper on the side that was cooling down. Later, it was discovered that a jury-rigged device that was holding the damper open at a certain level failed during the test causing the damper to swing fully open thereby entraining excess particulate matter into the exhaust stream. Operationally, the dampers do remain partially open during the burn-down and cool-down periods. This is the standard operating procedure and was followed during the burns for which the data show exceedingly low opacity levels. Keeping the offgas damper completely closed during the burn-down and cool-down periods would not be proper combustion management. An offgas damper opening not to exceed 20 percent is a reasonable setting. Also, the secondary combustion chamber temperature is already required to be monitored by Condition 5, so it does not need to be repeated in Condition 6. Therefore, please revise Condition 6 and Sub conditions 6.1, 6.2, and 6.3 as follows:

6. **Cool-down**. The Permittee shall not allow the offgas damper for the primary chamber on Unit ID 1 to open more than 20 percent during the cool-down period and the secondary chamber temperature to drop lower than 1,600ºF, except as provided in 18 AAC 50.240(d) – (g).

6.1 Record the dates and times of the day when the offgas damper is open more than 20 percent during cool-down and the total amount of time per month, in minutes, that the offgas damper is open more than 20 percent during cool-down.

6.2 Report under condition 40 whenever the offgas damper is open more than 20 percent during the cool-down period.

6.3 Report a summary of the records required by condition 6.2 with the report required by condition 41.

Response: *The language in condition 7 was carried forward from the operating permit that was proposed to be issued under the department's regulations prior to October 1, 2004. The department is unable to verify the reason to require the offgas dampers to remain shut during burn-down and cool-down cycles. Neither does the department have a basis to specify a 20% opening for the offgas damper. The operator should follow procedures specified in the standard operating and maintenance procedures (SOMP) based on the manufacture's manual for the dampers and any other controls systems in compliance with permit condition III B of construction permit No. 9771-AC012. The department inadvertently deleted the requirement for SOMP in the preliminary permit but will reinstate the condition (condition 42 in the final permit) for proper maintenance and operation. The requirement to follow procedure in the SOMP will serve condition 6 of the preliminary permit.*

15. Condition 7

The May 2004 Engineering Study conducted by Alaska Source Testing (AST) (see June 10, 2004, AST report submitted to ADEC under separate cover) evaluated the effects of lowering the secondary chamber combustion temperature on CO emissions from Unit ID 1. The Engineering Study concluded that maintaining a minimum secondary combustion temperature of 1,500°F and a minimum secondary chamber oxygen content of 1 percent in Unit ID 1 ensured complete combustion and limited hourly average CO concentrations to much less than 100 ppmv. In fact, the Engineering Study found that as long as the secondary chamber oxygen content was at least 1 percent, the CO concentration was less than 5 ppmv. Therefore, please revise Condition 7 and Subconditions 7.2 and 7.3 as follows:

7. The Permittee shall maintain the secondary chamber oxygen (O_2) content greater than or equal to 1% using an O_2 analyzer with performance specifications comparable to 40 CFR Subpart B.
7.2 Install and monitor an audible alarm that will sound if the O_2 drops below 1%.
7.3 Report under condition 40 whenever the secondary chamber O_2 content drops to less than 1% for more than 5 consecutive minutes.

Response: *Permit condition 7 requiring a minimum of 1.5% O_2 is based on the recommendation in the department's internal memorandum of September 29, 2004 (see Exhibit C of the Technical*

Analysis Report. The memorandum is a result of NSB's appeal to remove Continuous Emission Monitoring Systems (CEMS) for carbon monoxide. The NSB requested to replace CEMS with O_2 monitoring. The department's review memorandum is based on the information provided by the NSB, including engineering study carried out by Alaska Source Testing, referenced by the commentator. The basis for maintaining a minimum O_2 content of 1.5% is described in the memorandum.

16. Condition 12.2

Condition 12.2 references Condition 15.2b, which does not apply to Unit ID 1. The reporting required in Condition 12.2 is covered by Condition 12.4, so this part of Condition 12.2 should be deleted. To clarify the intent of this condition, please revise Condition 12.2 as follows:

12.2 Once each 12 months that used oil is burned is burned in Unit ID l, Permittee shall test a representative sample of used oil fuel for sulfur content at least once per year. As an alternative, if the oil burned in Unit ID 1 is generated exclusively off site, obtain test results showing the sulfur content of the fuel from the supplier; the test results must include a statement signed by the supplier of what fuel they represent.

Response: *The commentator is requesting revisions to sulfur content monitoring requirements for used oil in Unit ID 1. The 0.5 fuel sulfur limit in the preliminary permit condition 12.2 was intended for compliance with state emission standards for sulfur compound emissions. We now realize that incinerators are not subject to sulfur compound emission standards. As such the 0.5 fuel oil sulfur content will be deleted.*

Additionally, used oil specifications and monitoring to comply with federal standards is mandated by federal requirements. The inclusion of conditions 12 in the preliminary permit that specified federal requirements for burning used oil is beyond the scope of the minor permit program. Although this federal requirement is now not mandated by this minor permit, it is the responsibility of the Permittee to comply with applicable federal standards when burning used oil. Therefore, the department will delete all federal requirements for burning used oil. Since there is no state emission standards for sulfur compound emissions for incinerators, the condition will be deleted in it's entirety.

17. Condition 12.3

The used oil burner in Unit ID 1 is currently decommissioned. NSB may never recommission it. Therefore, please revise Condition 12.3 to require the analysis only if used oil is burned as a fuel in Unit ID 1:

12.3 Once each 12 months that used oil is burned in Unit ID 1, analyze used oil according to SW-846 test methods for arsenic, lead, cadmium, chromium, total halogens, flash point, and polychlorinated biphenyls (PCBs), prior to blending with the virgin fuel oil.

Response: *Condition 12.3 pertains to federal requirements and will be deleted from the minor permit. Please see response to item 16.*

18. Condition 15.2b
Unit ID 4 (Black Gold heater) is specifically designed to be used by automotive shops to burn used oil. Since the source of the used oil is the TOS facility itself (used oil is not obtained from outside sources) and it is from the same types of sources each time (e.g., crankcase oil from trucks and equipment on site), there is no reason to test every batch of oil. This is not required of other similar source throughout Alaska. A reasonable accommodation would be to measure the sulfur content of a representative sample of used oil once per year. Therefore, please revise Condition 15.2b as follows:

15.2b. test a representative sample of the fuel for sulfur content at least once per year; or

Response: *The department agrees that testing fuel sulfur content each time oil is added to the tank is cumbersome with no significant benefit. When used oil is generated onsite, there is no cause to believe that there will be significant variation in the fuel sulfur content of each batch. The department has previously determined that fuel oil containing less than 0.5 percent sulfur by weight comply with state sulfur compound emission standards. Additionally, the potential SO_2 emissions from units 4 and 6 are less than 0.5 tons per year and the stationary source is not approaching significant thresholds for PSD or ambient air quality standards for SO_2. Therefore, the department will revise condition 15.2b to require testing once every 12 months.*

19. Condition 16
The limit for HCl emissions from Unit ID 1 is 9.0 tpy. Therefore, please revise Condition 16 as follows:

16. The Permittee shall limit HCl emissions from Unit ID 1 to no more than 9.0 tons per 12 consecutive month period to avoid source classification as HAP major.

Response: *The department thanks the commentator for pointing out the typographical error. The condition should have correctly limited HCl emissions to no more than 9 tons and not to more than 9 tons as in the preliminary permit.*

20. Condition 17.3
The requirements for a co-fired combustor under 40 CFR 62, Subpart HHH, in Section 62.14400(b)(2) require the following:

1. Notify the EPA Administrator (or delegated enforcement authority) of an exemption claim and you provide an estimate of the relative weight of hospital waste, medical/infectious waste, and other fuels and/or wastes to be combusted.
2. Keep records on a calendar quarter basis of the weight of hospital waste and medical/ infectious waste combusted as well as the weight of all other fuels and wastes combusted at the co-fired combustor, and these records reflect that the source continues to meet the definition of co-fired combustor in 40 CFR 62.14490, and you submit such records to the EPA Administrator (or delegated enforcement authority) upon request. Reporting is not required by 40 CFR 62, Subpart HHH unless requested by EPA. Therefore, please revise Condition 17.3 as follows:

17.3 Record on a calendar quarter basis the weight percentage of HMIW combusted as well as the weight of all other fuels and wastes combusted in Unit ID 1. These records shall reflect that the unit continues to meet the definition of co-fired combustor in 40 CFR 62.14490.

Response: *The commentator is correct in stating that the owner or operator who qualifies for the exemption of Subpart HHH must submit records to support the claims to EPA upon request as outlined in 40 CFR 62.14400(c). The operator is not obligated to report the percentage of HMIW on a regular quarterly basis. As such, the department will revise permit condition 17.3 to replace the reporting requirement to record the percentage of HMIW.*

21. Condition 22.2a

Condition 22.2a has a typographic error; it should state:

The wetting process shall not result in the production of large volumes of dust (from steam evolution) that cannot be contained. If material is to be transferred to an open stockpile using a front-end loader or similar equipment, the loader's bucket shall be loaded with the minimum disturbance of the stockpile from which it is loading. An alternate method may be proposed for the Department's approval. When dumping into a stockpile or onto the ground, the lowest part of a loaded bucket shall be in contact with the stockpile or ground because this minimum drop distance generates the least dust.

Response: *The department acknowledges a typographical error in permit condition 22.2a. The correction will be made to the final permit.*

22. Condition 22.3

Fly ash may be stored in containers other than supersacks. Therefore, please revise Condition 22.3 as follows:

22.3 Every temporary fly ash storage area within the incinerator source shall be lined with an impervious material and barricaded, and the Permittee shall store fly ash in sealed supersacks or other suitable containers.

Response: *The reference to fly ash appears to be incorrect since there are no controls for fly ash. The commentator should have meant bottom ash. The commentator's request for bottom ash is valid. The operator should have the flexibility to store the bottom ash in any appropriate container rather than be restricted to only supersacks. Condition 22.3 will be revised to include supersacks or other suitable containers to store bottom ash.*

23. Condition 23

Since Condition 23 is a standard Title V permit requirement, please delete this condition from this minor permit.

Response: *Condition 23 sets out the requirement to perform regular maintenance according to the manufacture's and operators maintenance procedures, keep records of any maintenance that would have a significant effect on emissions.*

Condition 23 is a Title V requirement as well as a minor source permit requirement for the incinerator. The operator is required to obtain a minor source permit under 18 AAC 50.502(b)(4) as well as 18 AAC 50.508(b)(4), (because the source contains an incinerator with a cumulative rated capacity over 1,000lb/hr) and for Owner Requested Limits. In each permit issued under 18 AAC 50.502(b), the department will include terms and conditions to perform regular maintenance based on manufacturer's or the owner's maintenance procedures, keep records of any maintenance that would have significant impacts on emissions and to keep a copy of either the manufacturer's or the operator's maintenance procedures. Please see department's regulations 18 AAC 50.544(b)(2).

24. Condition 36

Notarized certifications are no longer required under 18 AAC 50.205. Therefore, please delete the last sentence of Condition 36.

Response: *The commentator is correct in stating that a notarized signature is no longer required under the department's new regulations effective October 01, 2005. Therefore, condition 36 will delete the requirement to notarize the responsible official's signature in the certifications.*

25. Condition 41

Submitting annual operating reports is sufficient for this minor permit. Therefore, please revise Condition 41 as follows:

41. Operating Reports. During the life of this permit, the Permittee shall submit to the Department one original and one copy of an operating report by February 1 for the period January 1 to December 31 of the previous year.

Response: *The existing construction permit No.9771-AC012 requires that the permittee submit quarterly operating reports. The basis for the current minor permit is also to revise terms and conditions of the existing construction permit. The department believes that a semi annual reporting period instead of a quarterly report will adequately meet compliance with the permit terms and conditions. Further, under 18 AAC 50.544(d), for a permit not subject to Title V permitting, the department will set out a time period between required affirmation as appropriate. For the NSB, the department has determined a six month interval for operating reports.*

26. Condition 42

The compliance certification is a Title V permit requirement and does not apply to this minor permit. Since this is a minor permit, NSB should be required to report only if and when the Permittee has made changes to the stationary source that would trigger the requirement for a new permit under 18 AAC 50. Therefore, Condition 42 should be deleted.

Response: *The department included the requirement to ensure periodic affirmation that the stationary source is accurately described by the minor permit. The requirement is based on 18 AAC 50.544(d) for minor permits that are not subject to Title V permitting. This is not a Title V compliance certification.*

Technical Analysis Report

Please revise the final Technical Analysis Report for Air Quality Permit No. AQ0831MSS01 with changes corresponding to the comments on the permit described above.

***Response**: The Technical Analysis will be revised where revision is needed.*